North Carolina Department of Transportation

James B. Hunt, Jr. • Governor E. Norris Tolson • Secretary of Transportation

Testimony of Paul C. Worley
North Carolina Department of Transportation Rail Division
before the
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Surface Transportation and Merchant Marine Subcommittee
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Chairman Hutchison and members of the Committee, I am pleased to have the opportunity today to discuss the initiatives of the North Carolina Department of Transportation to improve crossing safety through measures involving comprehensive engineering studies, crossing closure and consolidation, grade separated crossings and enhanced protection at public crossings.

My name is Paul Worley, and I am Assistant Director for Engineering & Safety for the North Carolina Department of Transportation's Rail Division. I serve as a co-chair of American Association of State Highway and Transportation Officials' (AASHTO) Standing Committee on Rail Transportation's Safety Task Force and as state representative on the Railroad Safety Advisory Committee. I also served on Secretary Peña's Blue Ribbon Working Group of the Grade Crossing Safety Task Force and participate as a part of CSX Transportation's joint railroad/state crossing safety Performance Improvement Team.

The North Carolina Department of Transportation has a comprehensive proactive rail effort underway in the areas of safety, higher speed rail planning and improvements, assistance to freight railroads intermodal passenger station development (including historic station rehabilitation) and passenger operations. Under agreement with Amtrak, we operate 2 daily passenger trains. One train is operated with equipment owned by the State. We also play a lead role in coordinating high-speed rail activities among the southeastern states along the Federally designated Southeast Corridor.

On the Sealed Corridor project, which is the first of its kind in the United States,

we take a corridor approach to the testing of new technologies. The Sealed Corridor is a joint effort of the North Carolina Department of Transportation and Norfolk Southern Corporation. This corridor approach is in the spirit of USDOT's Rail-Highway Crossing Action Plan. The project has been funded through a partnership with the Federal Railroad Administration and the Federal Highway Administration. Federal dollars for safety are supplemented with State matching funds and in-kind services from Norfolk Southern. While providing the majority of the funding, USDOT has empowered states and the railroad industry to think "outside the box" and develop solutions that enhance the existing warning devices at crossings and follow through with innovative, clear-minded approaches.
In 1997, North Carolina was ranked 14th nationally for train/vehicle collisions. The cost of personal injury and property damage is very high. A 1991 FHWA study places the total cost to society of a fatality at $2.78 million. Motorists continue to take their chances at crossings - even those that are signalized and have gates - sometimes with tragic consequences.

Norfolk Southern's main line between Greensboro and Charlotte over the North Carolina Railroad, is host to high levels of freight traffic, with 44 daily trains from the industrial northeast to the heart of the south. In addition, six passenger trains use this route daily. Historically, this route has a high rate of crossing incidents due to the ever-growing highway traffic in the urban areas along the corridor that crosses the tracks at numerous at-grade crossings. Over the past 12 years, 125 incidents, involving 56 injuries and 31 fatalities have occurred on the corridor.

In 1992, the United States Department of Transportation identified the Raleigh-Greensboro-Charlotte route as one of five nationally designated corridors for State high-speed rail development efforts. On December 1, 1998, USDOT Secretary Rodney Slater designated this route as the "Southeast Corridor" and extended it through South Carolina and Georgia. Under sections 1010 and 1036 of ISTEA and Section 1103[c] and the Next Generation High-Speed Rail program of TEA-21, a total of approximately $9 million has been designated for crossing safety improvements along these corridors.

This funding was used by the North Carolina Department of Transportation and Norfolk Southern to conduct a series of tests at the Sugar Creek Road crossing in Charlotte which is traversed by an average or 23,000 vehicles per day.

Using a digital camera system called "The Violator," we were able to capture moving images of "gate runners." Also, each crossing was equipped with an intelligent signal monitoring system to monitor the performance of each crossing and automatically provide notification of malfunctions.

For twenty weeks, baseline data was collected at the Sugar Creek Road crossing. Median barriers were then installed, followed by 4 quadrant gates, and then finally, 4 quadrant gates with median barriers. Using each of these barrier enhancements, the number of gate running incidents was significantly reduced. For example, median barriers reduced violations by 77%, 4 quadrant gates reduced violations by 86% and 4 quadrant gates with median barriers reduced violations by 98%.

A second location at Orr Road, also in Charlotte, was chosen to test the effectiveness of other barrier devices. This crossing is traversed by an average of 11,000 vehicles per day.

Again, baseline data was collected for 20 weeks. Longer gate arms were installed, followed by articulated gate arms. Using each of these barrier enhancements (78% articulated gates, 67% longer gate arms), the number of gate running incidents was significantly reduced.

During this project, we have recorded and viewed over 4,600 actual video events at three different crossings (57 hours), including over 1,831 violations by motorists - commercial, public, and private. You might have seen some of this dramatic footage on TV during the news stories over the past 10 days. The videotape has been submitted to your office, Madam Chairman, containing this information and copies are available for the committee. What is most shocking about our overall data gathered is that 42 % of motorists **wait zero seconds** before violating gates - with no intention of stopping at all!

A digital video ticketing system was placed in service in August 1998 at a crossing in Salisbury, which had a history of violators and incidents. In cooperation with local law enforcement and judicial officials, violators are being ticketed in a test that is the first of its kind in North Carolina. A demographic study of violators is being conducted by the University of North Carolina's Highway Safety Research Center. During the testing period of the video ticketing system, violations were reduced by 76%. The purpose of this study is to help us understand aggressive driver behavior.

Considering the success of the tests, it has been decided to expand the project to test these various barrier devices at crossings on a corridor basis between Greensboro and Charlotte, thus "Sealing the Corridor" from violations. There are 132 public and private crossings on the Greensboro-Charlotte corridor, over a distance of 92 miles, of which 89 have active warning devices. This comprehensive corridor approach includes evaluation of each crossing to determine the appropriate treatments, which include:

· Closure and Consolidation of redundant and/or unsafe crossings

- Median Barriers
- Longer Gate Arms
- Articulated Gate Arms
- 4 Quadrant Gates
- 4 Quadrant Gates with Medians
- Video Ticketing
- Grade Separations
- Special Signage
- Intelligent Signal Monitoring

Later phases of Sealed Corridor will extend corridor treatments from Greensboro east to Raleigh, along the Southeast Corridor. Final completion of Phase 1 between Greensboro and Charlotte is scheduled for 2001.

We believe that the data gathered at these test locations fully support this comprehensive corridor approach. This project will improve crossing safety and the efficiency of Norfolk Southern's intermodal and freight service, as well as North Carolina's passenger service. While we can enhance the existing warning devices at crossings, it is still the responsibility of the motorist to adhere to laws and good driving practices and "always expect a train."

At the North Carolina Department of Transportation, we are advancing the safety of highway-rail crossings, through aggressive program initiatives and partnerships with railroads, suppliers, the Federal government, local governments, and other interested stakeholders.

Our State has also used various Federal funding sources for crossing safety education efforts, including the training of law enforcement officers through our Operation Lifesaver program. The North Carolina General Assembly will also consider a bill this session to increase the penalty for operators of commercial vehicles violating crossings.

As positive as our Sealed Corridor experience has been, there still are issues that should be addressed. Our ability to treat at-grade crossings has been limited solely to public crossings. While some Federal funding sources are available to treat private crossings, the North Carolina Department of Transportation is not authorized to make improvements at private crossings. Also, there are limitations to our State's authority at municipal-system crossings. Considering the need to improve crossing safety, we believe that Congress should clearly grant states the flexibility and authority to use all crossing safety improvement funds for private crossings on high-density freight and passenger routes.

The North Carolina Department of Transportation has taken advantage of the

flexibility of Federal and State crossing safety funding. In addition to the more traditional approach of using funds for new signal devices at crossings, we are directing these funding sources to crossing consolidation projects, including those as identified in Traffic Separation Studies. Traffic Separation Studies are comprehensive engineering studies used to evaluate crossings and the surrounding highway network within a community on a corridor basis. We are also funding projects to provide more median barriers at crossings along high-density rail lines, to match cash incentives from railroads for closures, research and development of additional new technologies to protect crossings, locomotive video cameras, and the signalization of entire passenger routes. Since FRA set the 25% closure goal in 1992, the North Carolina Department of Transportation has closed 43 crossings statewide, with more on the way. In addition, the Department has now reorganized, combining all of our rail crossing safety programs into one unit within the Rail Division.

Through our Board of Transportation, North Carolina has also taken steps to change policies and guidelines regarding highway/railroad intersections. This includes prohibiting new at-grade crossings on designated high speed routes, strongly discouraging crossings on other high-density and passenger rail corridors, encouraging the closure and consolidation of crossings on railroads statewide, and adopting guidelines for when grade separated crossings should be built.

Madam Chairman, I appreciate the opportunity to provide testimony on these issues. I ask for the continued support of the Subcommittee as we pursue this work, and I again offer our assistance as the Subcommittee considers important railroad safety issues. Thank you.

For more information on the Sealed Corridor, visit our web site at:

http://www.bytrain.org

or contact:

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